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ABSTRACT

Observations of two groups of severely and profoundly retarded children (6-14 years old, n=28) residing in a state institution were carried out to determine what naturally occurring environmental events appear to control the children's behavior. After observing the children from Ward A in two settings, and the children from Ward B in three settings, two clear interrelationships emerged: (1) as activities involving peers and materials increased, inappropriate behaviors systematically decreased; and (2) activity level increased as the number of staff members present increased. (Author/SBH)

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An Analysis of Two Naturally Covarying Behaviors: Activity Level and Inappropriateness

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Abstract

Observations of two groups of retarded children (N = 28) residing in a state institution were carried out to determine what naturally occurring environmental events appear to control the children's behaviors. After observing the children from Ward A in two settings, and the children from Ward B in three settings, two clear interrelationships emerged: 1) as activities involving peers and materials increased, inappropriate behaviors systematically decreased; 2) activity level increased as the number of staff members present increased. These results suggest that the traditional belief that small child-staff ratios are valuable is a valid one, but that further research analyzing why increasing the number of staff members alters behavior is necessary.

Summary

In the developing technology of behavior analysis, there has been a continuing focus on socially-based interventions. Interventions that relied heavily on social reinforcement, or time-out from reinforcement, have been applied widely and successfully. Recently, a two-pronged argument in favor of broadening behavioral technology by including some elements of ecological psychology has been made. One argument proposed by ecologists has been that behaviors will tend to co-vary (Willems, 1974; Wahler, 1975). Thus, when an intervention is performed, the cautious practitioner should monitor both the target behavior and other, possibly co-varying behaviors. This approach supposes that there may be side-effects, both good and bad, that deserve careful examination.

A second argument, one implicitly made in the research of Risley and his colleagues, suggests ecologically-based intervention may be a viable alternative to or companion of the more common socially-based behavior change methods. A nonsocial or ecological intervention might, for example, call for the rearrangement of the cots in a daycare center, rather than reinforcing children for resting quietly, as a means of insuring appropriate behavior during the nap time. Such a rearrangement might facilitate the target behavior or simply increase the staff's efficiency so that social consequences can be directed towards critical behavioral changes.

In the present study, an ecological analysis of two wards of a state institution for the severely and profoundly retarded was made to determine how selected elements of the wards affected the behavior. Specifically, an examination was made of the effects of number of staff, and type of activity of residents and staff members, on activity level and rate of inappropriate behavior by the children.

Fourteen children living on one ward (A) and 14 children living on a second ward (B), and their respective staffs, were observed. All residents were between 6 and 14 years of age, and were classified as severely or profoundly retarded. The first ward had nine boys and five girls, all of whom were involved in a language-training program for severely language-

deficient children. All children of the second ward (B) were male; approximately half of them were also involved in the language-training program.

Ten observations were made of each ward, during each of its specific activities (a total of 50 observations). In Ward A, freetime observations and program observations lasted between one and one-and-a-half hours. In Ward B, the length of observations varied with the ward schedule. Freetime observations and program observations lasted approximately 45 minutes each, and playground observations about 30 minutes. Observations were made during the same time each day.

In both wards, freetime observations were made during the morning when no specific activities were planned for the children. In Ward A, the staff occasionally initiated play with toys. In Ward B, no such activities ever occurred during free time observations. Program observations were made during the period of time specifically assigned for working on small-motor and pre-academic tasks. During the program, two to four children worked on these tasks with a staff member, usually while seated at a table. Food reinforcement for appropriate behavior was always available in both wards during program time.

Children were observed for two types of behavior: level of activity, and inappropriateness. Three levels of activity, (1) isolate, (2) adjacent, and (3) interacting, were defined in terms of the child's proximity and degree of interaction with materials and/or peers. Inappropriate behaviors included tantruming, self-stimulation, hitting, biting, and other acts of aggression. Observations were made by scanning the children present in the area, looking at each child for 10 sec and then recording the child's behavior during the next 5 sec, until all children present had been scanned. This cycle was repeated as often as time allowed.

The observer collecting the child activity-level data counted the number of staff present at the beginning of the scan, and again halfway through the scan. Thus, data on number of staff were collected once every two minutes.

A total of 10 reliability samples were taken, twice in each of the

activity settings. Mean reliability for all categories exceeded 90%.

These observations showed that across all settings, the amount of inappropriate behavior by the residents decreased as the activity level rose. That is, as the children engaged in more interactions with peers and materials, the number of incidents of agression, self-stimulation, and tantruming decreased. The subjects on Ward A showed consistently less inappropriate behavior than the children on Ward B, however in

Insert Figure 1 here

both cases inappropriateness was inversely related to activity level of the residents.

Inappropriate behavior also appeared to be affected by the number of adults present in the setting. As more staff entered the setting, the number of inappropriate behaviors decreased, as shown in Figure 2.

Insert Figure 2 here

Also, as the number of adults in the setting increased, the mean activity level tended to increase. Remember that interaction levels indicate child-to-child and child-to-material interactions, not adult-to-child interactions. Typically, when one or two staff members were

Insert Figure 3 here

present, the children were isolate. They sat on the floor or the furniture, staring into space or dozing. On a scale of 1-3, their activity level was about 1.4. During the program period, there were usually four staff present, and activity level averaged about 2.5 of a possible score of 3. Number of staff was not the only variable to influence activity level. Other data collected in this project, but not reported here, suggest that staff behavior toward the residents also changed somewhat across settings. However, within each activity setting, the inverse relationship between number of staff and level of inappropriateness held.

There are several implications of these findings. First, there is

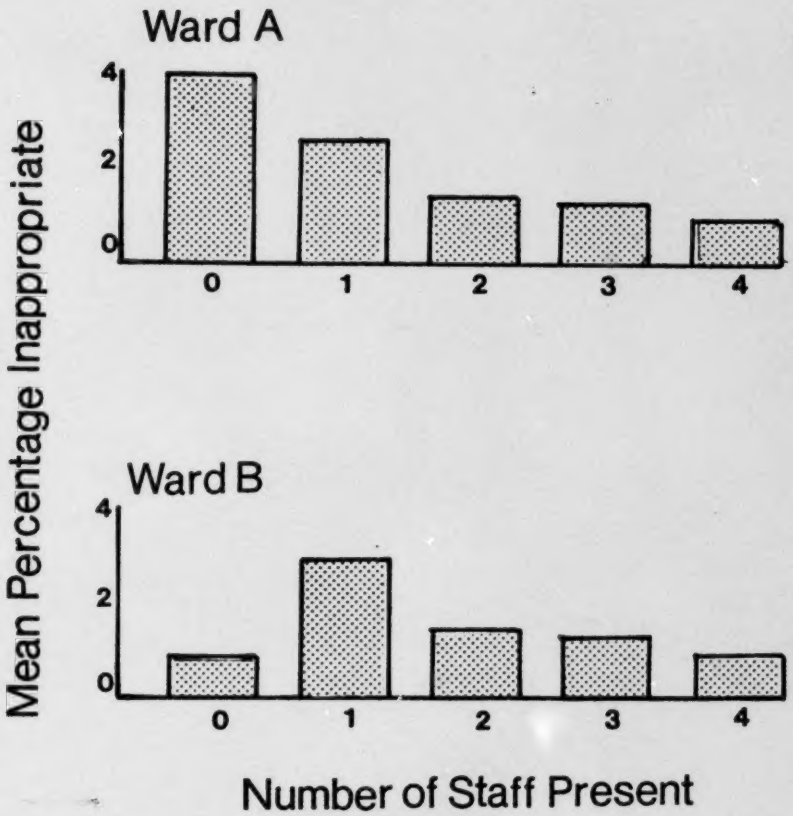
clear support for the notion of behavior change through strengthening an incompatible behavior. As interaction with materials and peers increased, inappropriate behavior declined. If interactions can be increased by bringing more staff members to the ward, as might be done during skill-teaching programs, then inappropriate behavior can be decreased somewhat without the use of more specific procedures, such as time-out. This positive side-effect appears to be a valuable one.

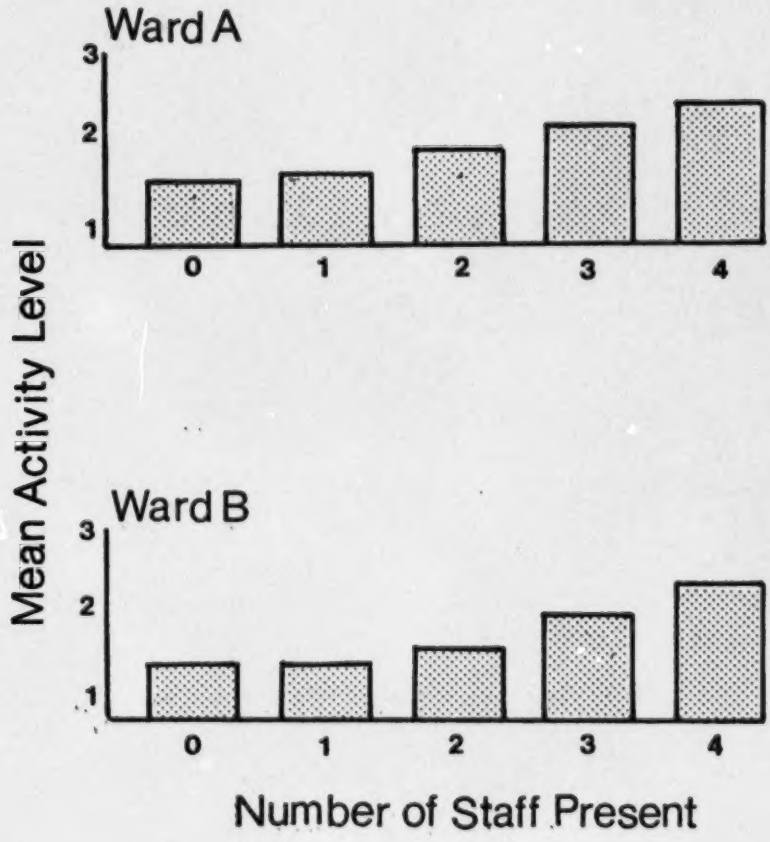
The effects of increasing the number of staff are straightforward, but application of the lesson may not be possible. Although it is clear that more staff will increase residents' activity levels while decreasing their inappropriate behaviors, few institutions can afford to provide several aides for each ward on a continuing basis. Providing structured activities and carefully distributing staff time across children within the setting may be more practical.

This research points to several areas which merit further investigation. It is possible that the changes incurred when more adults entered the setting were the result of an increasing reinforcement rate by the staff. Thus, a constant number of staff would have the same effect as increasing the number of staff. An examination of the immediacy of the effect of increasing the number of staff might aid in determining if it was the cueing effect (i.e., their presence serving as an indicator that reinforcement and/or punishment was available) of the staff, rather than their actual reinforcement which precipitates changes in the residents' behaviors.

This study was carried out as a preliminary to the designing of an intervention program for language delayed and deficient children. While originally intended to be a pilot study, the data collected provided an interesting ecological perspective on behavioral program planning.

The value of such ecological analysis lies in aiding the behavior analyst to determine what already existing characteristics of the environment might be incorporated into an intervention to assure its success or maximize its efficiency. Knowing the setting into which one intervenes may be critical in creating the therapeutic environment.


Ward A
4
2
0
0
1
2
3
4
Ward B
4
2
0
0
1
2
3
4
Mean Percentage Inappropriate
Number of Staff Present


Ward A
3
2
1
0
1
2
3
4
Mean Activity Level
Ward B
3
2
1
0
1
2
3
4
Number of Staff Present

Percentage Inappropriate Behavior
0
5
10
15
20
25
30
35
40
Ward B
Mean Activity Level
1.0-1.19
1.2-1.39
1.4-1.59
1.6-1.79
1.8-1.99
2.0-2.19
2.2-2.39
2.4-2.59
2.6-2.79
2.8-3.0

0
5
10
15
20
25
30
35
40
Ward A